

$$1. A \cup B = \{$$

$$2. A \cap B = \{$$

$$3. \mathbb{N} \cap B = \{$$

Means: "The set of all  $x$  such that  $x$  is an Integer between 4 & 9." List the elements of  $C$ .

Interval Notation:  $C = \{x \mid 4 < x < 9, x \in \mathbb{Z}\}$

1. The set of all rational numbers between

-3.2 & 5.  $\{x \mid -3.2 < x < 5, x \in \mathbb{Q}\}$

infinite set  $\rightarrow$  can't list.

including 5 & 12.  $\{x \mid 5 \leq x \leq 12, x \in \mathbb{R}\}$

infinite set  $\rightarrow$  can't list.

$$\{x \mid x < 8, x \in \mathbb{N}\}$$

$$\{0, 1, 2, 3, 4, 5, 6, 7\}$$

**UNIVERSAL SETS**

The symbol  $U$  is used to represent the **universal set** under consideration.

**COMPLEMENTARY SETS**

The **complement** of  $A$ , denoted  $A'$ ,

is the set of all elements of  $U$  which are not in  $A$ .

- $A \cap A' = \emptyset$
- $A \cup A' = U$
- $n(A) + n(A') = n(U)$

Example:  $\mathbb{Q} \cap \mathbb{Q}' = \emptyset$  and  $\mathbb{Q} \cup \mathbb{Q}' = \mathbb{R}$ .

Classwork: 7C p. 217, # 1 - 6

$$U = \{\mathbb{Z}^+\} \quad P = \{\text{multiples of 4 less than 50}\}$$

$$Q = \{\text{multiples of 6 less than 50}\}$$

$$P = \{4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48\}$$

$$Q = \{6, 12, 18, 24, 30, 36, 42, 48\}$$

$$P \cap Q = \{12, 24, 36, 48\}$$

$$P \cup Q = \{4, 6, 8, 12, 16, 18, 20, 24, 28, 30, 32, 36, 40, 42, 44, 48\}$$

Verify that  $n(P \cup Q) = n(P) + n(Q) - n(P \cap Q)$ .

$$16 = 12 + 8 - 4$$

$$16 = 16 \checkmark$$

HW:

7B p. 216, # 2, 3

7C p. 218, # 7 - 13

Bring your IB handouts tomorrow so we can talk about the project.

P1, P2, Scoring Guide